

CITY OF COLUMBUS
DIVISION OF FLEET
MANAGEMENT

GREEN FLEET ACTION PLAN 2019-2021

2021 Year End Update



THE CITY OF
COLUMBUS
ANDREW J. GINTHER, MAYOR

DEPARTMENT OF FINANCE
AND MANAGEMENT

INTRODUCTION

Recognizing the role a healthy environment plays in contributing to the City of Columbus' reputation as an Opportunity City, the City has established the Sustainable Columbus initiative. This initiative, under the leadership of Columbus Mayor Andrew J. Ginther, focuses on optimizing city operations and working with external stakeholders to enhance and promote environmentally friendly policies throughout our community. As part of our sustainability initiatives, Fleet Management developed a green fleet action plan, which serves as a road map to greening our city's fleet. This is now the fourth update of the plan, which builds upon our successes while strengthening our ongoing efforts to reduce our carbon footprint.



GREEN AWARDS

Columbus Fleet Management continues to be a front-runner in the nation in building a sustainable fleet. The past several years have yielded significant accomplishments toward this end goal, including:

- City of Columbus named the #1 Greenest Fleet in North America by Government Fleet
- City of Columbus awarded the #1 Leading Fleet in the U.S., due largely to our alternative fuel program - now considered an “Elite” fleet and sits on the judging panel for Government Fleet
- Awarded one of Heavy Duty Trucking’s Top 50 Green Fleets every year from 2013-2018
- Seven Columbus divisions (Fleet Management, Refuse Collection, Facilities Management, Infrastructure Management, Sewerage and Drainage, Code Enforcement and the Division of Police) are all certified as Ohio Green Fleets
- Received the 2012 Sustainability award from Government Green Fleets
- Awarded the “Clean Fuels Champion” statewide award by Clean Fuels Ohio in 2008 and again in 2011
- Environmental Stewardship Award (2009) presented by Government Fleet Magazine, Bobit Publishing for public sector fleets in the USA

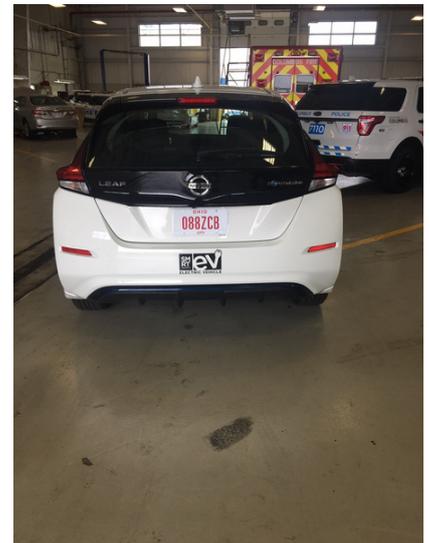


PURPOSE/STRATEGIES

Columbus has a history of developing sustainability plans in collaboration with the community. The most recent update to our plan is known as *Sustainable Columbus 2030*. As part of its vision to be carbon neutral by 2050, Columbus has committed to a goal of reducing greenhouse gas emissions by 40% from municipal operations by the end of 2030. In order to help meet this goal, the main objective of Columbus' green fleet plan is to reduce our overall fleet emissions. Our efficient management of fuel consumption and increase in the overall efficiency of the fleet has driven down our greenhouse gas emissions over the last few years. From 2013-2020, Columbus reduced our fleet emissions by approximately 33.5%.*

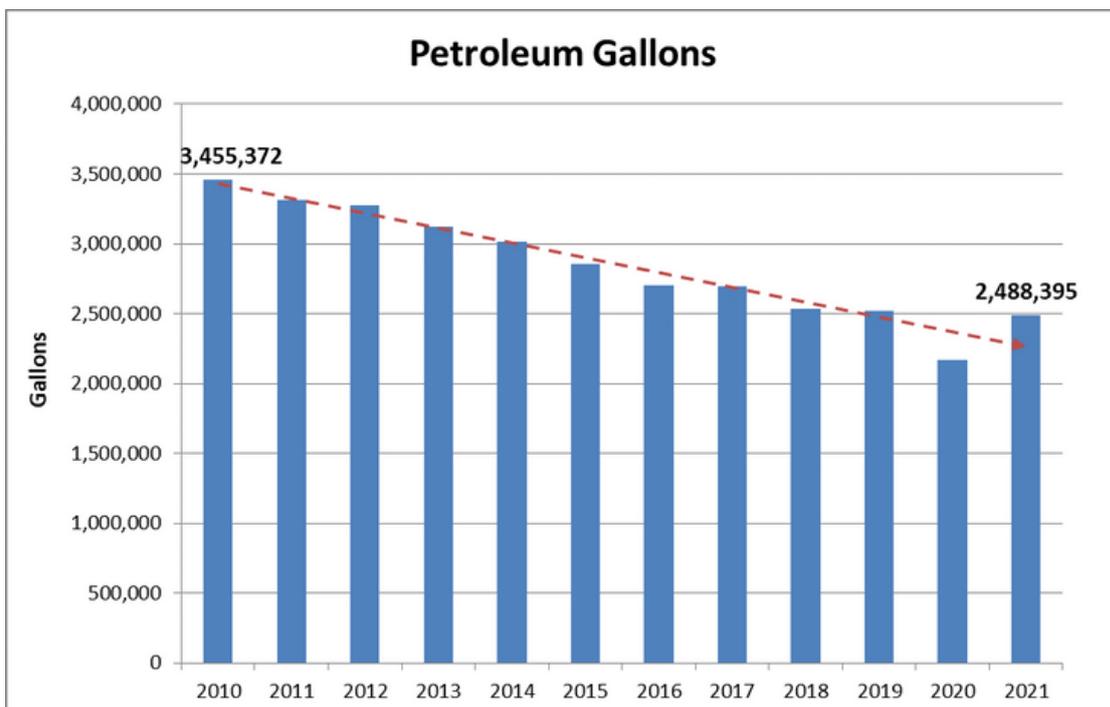
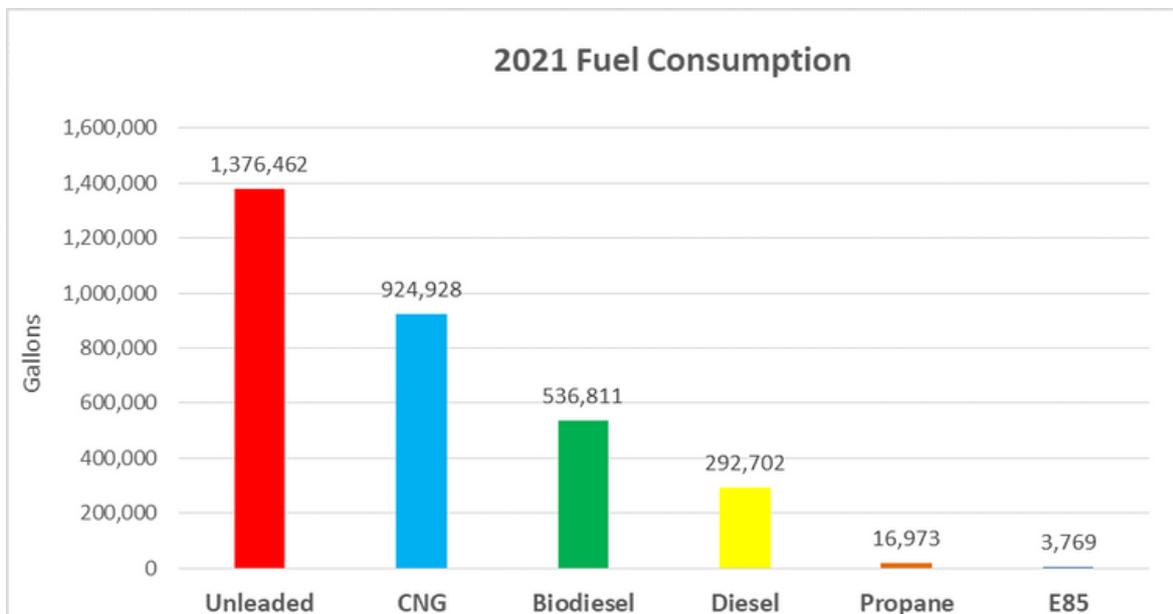
One of the most effective ways to drive down fleet emissions is to reduce petroleum use. From 2010-2021, city fleet vehicles reduced petroleum use by 28% (almost 967,000 gallons). We expect this trend to continue, although level out, with the yearly addition of CNG and electric vehicles to our fleet as well as our continued use of biodiesel (B20), E85 and propane fuels. We also continue to refine and enhance “green” procurement policies; to work with city agencies to right-size and downsize their fleets; promote the anti-idle policy and install anti-idle technology where possible, and utilize GPS and AVL telematic technologies.

*City of Columbus Greenhouse Gas Inventory 2020



DIVISION OF FLEET MANAGEMENT

- The City of Columbus Fleet Management Division maintains over 6200 pieces of equipment
- Approximately 3060 are on-road vehicles, i.e., cars, trucks, SUVs, etc.
- Approximately 3150 are off-road, e.g. construction equipment
- Half (50%) of Columbus' on-road fleet are some type of alternative fueled vehicle
- 3,151,644 total gallons of fuel were consumed in 2021 (including all alternative fuel). Fuel breakdown below
- Petroleum fuel use has steadily declined since sustainability initiatives have been put in place - 28% reduction since 2010 - that's almost 967,000 gallons!



GREEN ACTIONS AND TARGETS 2019-2021

Following are the actions and targets Columbus will utilize to reduce petroleum use and achieve emission reductions from 2019-21.

Action: Increase light duty vehicle purchases that are considered green

- **Target:** at least 75% of light duty purchases each budget year will be green

Electric vehicles - In 2020, Fleet Management fulfilled its portion of the Smart Columbus initiative by adding 200 electric vehicles to our fleet, along with implementing the necessary charging infrastructure. Columbus currently owns 204 combined battery electric vehicles and plug-in hybrid vehicles. A new goal to increase our electric fleet has been established in the recently developed Columbus Climate Action Plan, released December 2021.

Hybrid electric vehicles - Hybrid technology features a gas engine plus an electric motor, and switches between the two. The gas engine and regenerative braking recharge the battery, which doesn't need to be plugged in. HEVs typically achieve better fuel economy and have lower fuel costs than similar conventional vehicles. Columbus currently owns approximately 169 hybrid vehicles.

Start/stop technology - Columbus owns approximately 40 Ford Escape vehicles equipped with "start/stop" technology. Start/stop technology is now standard equipment on these Escapes, which allows the engine to shut down during stops, so the vehicle emits zero emissions and burns no fuel. This technology is estimated to boost fuel economy by as much as 6% in stop and go traffic

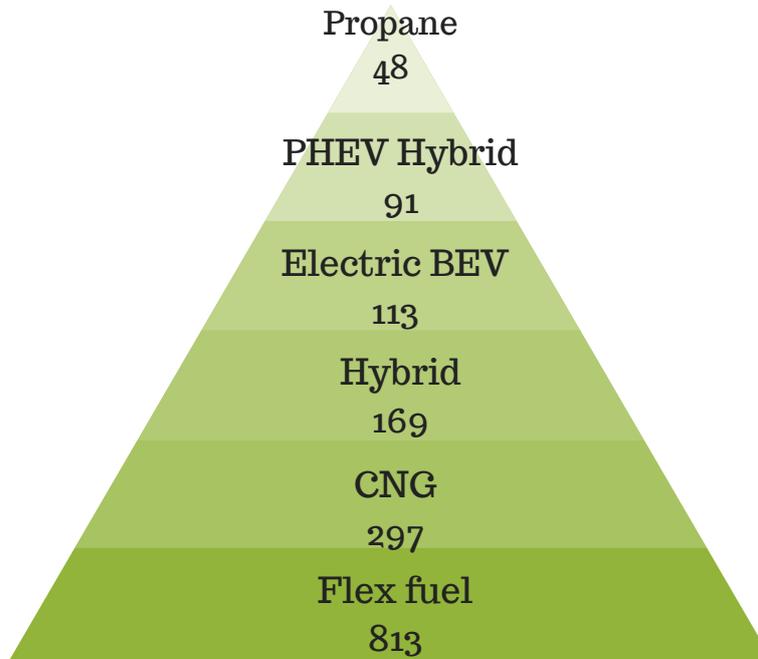
Flex fuel - a large portion of Columbus' light duty fleet are flex fuel vehicles - vehicles that can run on either regular gasoline or gas-ethanol blends up to 85% ethanol (E85). The use of E85 reduces our petroleum use and is also typically less expensive than regular gasoline.

2021 year-end update: Columbus purchased 143 light duty vehicles in 2021. Of these, 108, or 76%, were some type of green vehicles. The majority of green light duty vehicle purchases were either hybrids or flex fuel vehicles. According to the city's EV charging vendor, ChargePoint, city EVs used 181,584 kWh of electricity in 2021. This equates to saving 22,789 gallons of gasoline and 76,266 kg of green house gas (GHG), which is like removing 28 passenger vehicles a year from the road.

Columbus recently released a Climate Action Plan, which targets continuing and accelerating the electrification of our fleet. Fleet Management will continue to work with city agencies to purchase electric vehicles whenever possible.



Number of alternative fuel vehicles in Columbus fleet: 1531



Action: Increase heavy duty vehicle purchases that are considered green (excluding Safety vehicles)

- **Target:** at least 80% of heavy duty purchases each budget year will be green

Compressed Natural Gas (CNG) vehicles - Fleet will continue to encourage the City's "environmentally preferable purchasing" policy and continue to review all vehicle specifications to encourage that green options are included where feasible on heavy duty vehicles. CNG vehicles will likely comprise the majority of "green" heavy duty purchases in the coming years. All heavy duty purchases will be targeted for CNG when possible, as heavy duty vehicles are the largest consumers of fuel and therefore yield the greatest return on fuel savings and reduced emissions. Columbus currently operates four CNG fueling stations for use by both the city and the public located on the east, west, and north sides of the city, and an additional shared station with COTA located near downtown.

2021 year-end update: Columbus purchased 26 heavy duty vehicles in 2021. Of these, 13, or 50%, were some type of green vehicle. The majority of green heavy duty vehicle purchases were CNG vehicles. Several factors contributed to the lower number of green vehicles being purchased in 2021 including several specialty vehicles (COVID funds), non-availability of CNG models and vehicles purchased for locations too far from a CNG station. City vehicles consumed 924,928 gge's of CNG in 2021, resulting in a combined savings of over \$1,150,640 - \$729,833 from reduced costs compared to the price of diesel fuel plus \$420,810 from the anticipated federal alternative fuel tax credit of \$.50/gge.



Action: Utilize anti-idling technology where feasible

- **Target:** 25% reduction in idle time when utilized

GRIP - Columbus installed anti-idling technology, known as GRIP units, on approximately 360 new police cruisers starting in 2015. These devices allow the cruisers to reduce idling, thereby significantly reducing fuel consumption. The technology stops and restarts a cruiser automatically without affecting the on-board power needs that are essential to operate computers and radio communications.

2021 year-end update - An analysis of GRIP data was performed in 2020. The cumulative life-to-date reduction in idle time for all vehicles for which data was received totals approximately 35%, or 542,100 hours, which equates to saving approximately 17,890,000 miles on the cruisers by avoiding wear and tear on the engines. The GRIP system has saved an estimated 238,530 gallons of fuel and reduced carbon emissions by approximately 2,123 metric tons since being installed in 2015- the equivalent to removing 459 passenger vehicles from the road for one year.

As of 2019, all police cruisers are being ordered as hybrids so GRIP units will no longer be needed on new cruisers. In the new hybrid cruisers, the on board electrical equipment is powered by a lithium-ion hybrid battery, allowing the gasoline engine to shut off when idling so will operate similarly to the GRIP units. The new hybrid cruisers began arriving in late 2020 and Columbus now has approximately 111 units in service.



Action: Implement green off-road options where equipment is available and fits the application

- **Target:** Continue to explore propane and electric options for off-road equipment

Fleet Management will work with divisions to explore available green off-road options, and will also work with our Purchasing Office to include green options in off-road equipment specifications.

Propane - Columbus currently has 39 propane mowers in service, for use mainly at municipal golf courses and parks. Mowers continue to be replaced with propane when available. We also have 7 propane powered forklifts and one propane floor sweeper.

Electric - Fleet has several electric utility carts in use around our Groves Road facility, and the Police division uses one at its horse barn and during parades. The Department of Public Utilities purchased two electric carts in 2021 for use on their campus. The utility carts come equipped with flat beds and are able to haul 6,000 pounds of load as well as tow. These carts all replace gasoline powered units.

2021 year-end update: Columbus purchased 4 electric off-road vehicles in 2021 - two electric carts for use by our Utilities Department, one forklift and one floor sweeper.



Next Steps

Achieving these targets and reducing our emissions from fleet operations will require the participation of all City departments and divisions. The Fleet Management Division, with support from the Director of Finance and the Mayor's Sustainable Columbus initiative, will take the lead in implementing these actions and will track the progress of the targets. Updates will be provided at mid-year and year end to outline the activity that has taken place. We expect this document to be fluid- new technology, new grant opportunities, funding challenges, etc. are constantly happening. Every effort will be made to take advantage of the best options available to make our fleet as sustainable as possible while minimally impacting City operations.



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